

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method for inspecting ~~a~~ component mounting accuracy in a component mounting operation ~~for mounting a component~~ held by a component holding member on a board, comprising:

with use of an inspection-use component having an almost rectangular parallelepiped shape and having an ~~irreflexive~~ irreflective surface as one surface and a reflecting surface as a surface opposed to the one surface, while applying light to the reflecting surface of the inspection-use component in a state ~~that in which~~ the ~~irreflexive~~ irreflective surface is held by the component holding member, picking up a real image of the inspection-use component formed by reflected light created by the applied light;

recognizing a posture of the inspection-use component held by the component holding member ~~through~~ by recognizing image data of the picked up real image;

mounting the inspection-use component ~~by~~ with the component holding member in such a way that the reflecting surface of the inspection-use component is disposed in a component mounting position on a component mounting side-surface of an inspection-use board which is formed from a light transmitting material and which has a reflecting surface disposed on a surface opposed to the component mounting side-surface ~~in a state of~~ and facing the component mounting side-surface; while correcting posture-displacement between the recognized holding posture and a reference holding posture;

while applying light to the component mounting-side surface of the inspection-use board so as to transmit the applied light through the component mounting-side surface and reflect the applied light on the reflecting surface, picking up an image of an outline of the inspection-use component formed by reflected light coming from around the inspection-use component through the component mounting-side surface; and

calculating an actual mounting position of the inspection-use component by recognizing image data of the picked up outline; and then obtaining a component mounting accuracy by

calculating a difference between the actual mounting position and ~~the~~ a preset component mounting position.

2. (Original) The method for inspecting the component mounting accuracy as defined in Claim 1, wherein the light transmitting material is a glass material.

3. (Currently Amended) The method for inspecting the component mounting accuracy as defined in Claim 1, wherein the reflecting surface of the inspection-use board is a specular reflecting surface for specular reflection of the applied light, and
the inspection-use board has a diffusion layer disposed in between the component mounting-side surface and the specular reflecting surface, for diffusing the specular-reflected light.

4. (Currently Amended) The method for inspecting the component mounting accuracy as defined in Claim 1, wherein the reflecting surface of the inspection-use board is a diffuse reflecting surface for reflecting the applied light with ~~diffusing~~ diffusion.

5. (Previously Presented) The method for inspecting the component mounting accuracy as defined in Claim 4, wherein the diffuse reflecting surface is formed by applying a diffuse reflection sheet onto an opposite surface of the inspection-use board.

6. (Currently Amended) A method for inspecting ~~a~~ component mounting accuracy in ~~a~~ component mounting operation ~~for mounting a component held by a component holding member on a board, comprising:~~

mounting the component ~~by~~ with the component holding member in a component mounting position on a component mounting side-surface of an inspection-use board, which is formed from a light transmitting material and which has a reflecting surface disposed on a

surface opposed to the component mounting side-surface ~~in a state of~~ and facing the component mounting side-surface;

while applying light to the component mounting-side surface of the inspection-use board so as to transmit the applied light through the component mounting-side surface and reflect the applied light on the reflecting surface, picking up an image of an outline of the component formed by reflected light coming from around the component through the component mounting-side surface; and

calculating an actual mounting position of the component by recognizing image data of the outline acquired by the image pickup operation; and then obtaining a component mounting accuracy by calculating a difference between the actual mounting position and the preset component mounting position.

Claims 7 and 8. (Canceled)

9. (Currently Amended) An apparatus for inspecting component mounting accuracy in a component mounting apparatus for mounting a component held by a component holding member on a board, comprising:

an inspection-use board which is held by the component mounting apparatus in place of the board, is formed from a light transmitting material, and has a reflecting surface disposed on a surface opposed to a component mounting-side surface of the inspection-use board and facing the component mounting-side surface;

an inspection-use component which is fed to the component mounting apparatus in place of the component, forms an almost rectangular parallelepiped shape having an irreflective surface as one surface and a reflecting surface as a surface opposed to the one surface, and is held by the component holding member with its held surface as the irreflective surface and mounted on the inspection-use board in such a way that the reflecting surface faces the component mounting-side surface of the inspection-use board;

a component image pickup device for applying light to the reflecting surface of the inspection-use component in a state in which the irreflective surface is held by the component holding member and for picking up an image of the inspection-use component formed by a reflected light created by the applied light;

a board image pickup device for applying light to a component mounting-side surface of the inspection-use board with the inspection-use component mounted in a component mounting position so as to transmit the applied light through the component mounting-side surface and reflect the light on the reflecting surface and for picking up an image of an outline of the inspection-use component formed by a reflected light coming from around the inspection-use component through the component mounting-side surface;

a holding posture recognition section for recognizing a posture of the inspection-use component held by the component holding member by recognizing an image data of a real image of the inspection-use component while being held so as to correct posture-displacement between the recognized holding posture and a reference holding posture;

a mounting position recognition section for recognizing an actual mounting position of the inspection-use component by recognizing an image data of the outline of the inspection-use component while being mounted; and

a mounting accuracy operation section for obtaining the component mounting accuracy by calculating a difference between the actual mounting position recognized by the mounting position recognition section and a preset mounting position of the inspection-use component;

~~—The apparatus for inspecting the component mounting accuracy as defined in Claim 7,~~

wherein the reflecting surface of the inspection-use board is a specular reflecting surface for specular reflection of the applied light, and the inspection-use board has a diffusion layer for diffusing the specular-reflected light.

10. (Currently Amended) An apparatus for inspecting component mounting accuracy in a component mounting apparatus for mounting a component held by a component holding member on a board, comprising:

an inspection-use board which is held by the component mounting apparatus in place of the board, is formed from a light transmitting material, and has a reflecting surface disposed on a surface opposed to a component mounting-side surface of the inspection-use board and facing the component mounting-side surface;

an inspection-use component which is fed to the component mounting apparatus in place of the component, forms an almost rectangular parallelepiped shape having an irreflective surface as one surface and a reflecting surface as a surface opposed to the one surface, and is held by the component holding member with its held surface as the irreflective surface and mounted on the inspection-use board in such a way that the reflecting surface faces the component mounting-side surface of the inspection-use board;

a component image pickup device for applying light to the reflecting surface of the inspection-use component in a state in which the irreflective surface is held by the component holding member and for picking up an image of the inspection-use component formed by a reflected light created by the applied light;

a board image pickup device for applying light to a component mounting-side surface of the inspection-use board with the inspection-use component mounted in a component mounting position so as to transmit the applied light through the component mounting-side surface and reflect the light on the reflecting surface and for picking up an image of an outline of the inspection-use component formed by a reflected light coming from around the inspection-use component through the component mounting-side surface;

a holding posture recognition section for recognizing a posture of the inspection-use component held by the component holding member by recognizing an image data of a real image of the inspection-use component while being held so as to correct posture-displacement between the recognized holding posture and a reference holding posture;

a mounting position recognition section for recognizing an actual mounting position of the inspection-use component by recognizing an image data of the outline of the inspection-use component while being mounted; and

a mounting accuracy operation section for obtaining the component mounting accuracy by calculating a difference between the actual mounting position recognized by the mounting position recognition section and a preset mounting position of the inspection-use component;

~~—The apparatus for inspecting the component mounting accuracy as defined in Claim 7,~~
wherein the reflecting surface of the inspection-use board is a diffuse reflecting surface for reflecting the applied light with diffusing diffusion.

Claim 11. (Canceled)